

Name: _____ Date: _____

Answer Key: Sustain-Ability: A 12th Grade Green Economy Slam Dunk

Analyze the interplay of life-cycle assessments, circular economic models, and planetary boundaries through diverse inquiry-based prompts.

1. Which analytical framework specifically evaluates a product's environmental impact from raw material extraction through final disposal, often used in corporate ESG reporting?

Answer: B) Life Cycle Assessment (LCA)

LCA is a 'cradle-to-grave' or 'cradle-to-cradle' analysis that quantifies energy, water, and waste at every stage of a product's life.

2. The ____ economy is a model of production and consumption that involves sharing, leasing, reusing, and recycling existing materials for as long as possible.

Answer: C) Circular

A circular economy aims to decouple economic growth from finite resource consumption by designing out waste and pollution.

3. The 'Precautionary Principle' suggests that if an action has a risk of causing harm to the environment, the burden of proof that it is NOT harmful falls on those taking the action.

Answer: A) True

This principle is a core tenet of environmental law, prioritizing preventive action when scientific certainty is lacking.

4. In the context of the UN Sustainable Development Goals (SDGs), 'Goal 12: Responsible Consumption and Production' would most likely prioritize which of the following urban initiatives?

Answer: B) Implementing 'Right to Repair' legislation

Right to repair reduces electronic waste and promotes product longevity, directly aligning with sustainable consumption patterns.

5. Rockström's 'Planetary Boundaries' framework identifies ____ loss and nitrogen/phosphorus cycles as two areas where humans have already exceeded safe operating limits.

Answer: A) Biodiversity

Name: _____ Date: _____

Biodiversity loss (biosphere integrity) is considered a 'core' boundary that has been breached, threatening the stability of the entire Earth system.

6. Externalities refer to the hidden costs of production, such as air pollution, that are not reflected in the market price of a good or service.

Answer: A) True

Internalizing these costs (e.g., through carbon taxes) is a primary economic strategy for achieving sustainability.

7. Which of these concepts describes a situation where an individual's attempt to maximize personal gain from a finite, shared resource leads to the resource's depletion for everyone?

Answer: B) The Tragedy of the Commons

Coined by Garrett Hardin, this concept explains why collective governance is necessary to manage shared resources like the atmosphere or oceans.

8. In the 'Triple Bottom Line' accounting framework, a corporation evaluates its performance based on Profit, People, and ____.

Answer: B) Planet

The 'Planet' pillar ensures that environmental impact is measured alongside social and financial success.

9. Renewable energy sources like biomass and hydroelectricity are always sustainable, regardless of the scale of implementation or local ecosystem displacement.

Answer: B) False

Sustainability requires context; for example, large dams can destroy habitats and displace communities, negating their environmental 'renewable' benefits.

10. The 'Great Acceleration' refers to the period after 1950 characterized by which of the following trends?

Answer: C) Rapid exponential growth in human activity and resource consumption

This period marks a significant shift in the Anthropocene where human impact on the Earth's systems increased dramatically.